REMARKS/ARGUMENTS

Favorable reconsideration of this Application, as presently amended and in light of the following discussion, is respectfully requested.

This Amendment is in response to the Office Action mailed on February 11, 2004. Claims 1-39 are pending and stand rejected in this Application. Claims 1-5, 14-18, and 27-31 are amended by the present amendment.

Claims 1-39 were rejected under 35 U.S.C. §102(b) as being anticipated by Kondou et al. (U.S. Patent No. 5,445,517, hereinafter "Kondou"). Applicants respectfully submit that Claims 1-39 are not anticipated by Kondou because each and every element as set forth therein is not found, either expressly or inherently described, in the cited reference. In an anticipation rejection, MPEP § 2131 requires that the identical invention must be shown in as complete detail as is contained in the claim.

Among other novel and nonobvious advantages of the present inventions, important features of the present invention, specifically claimed in various forms in the independent claims, relate to combustion vibration estimating apparatuses to estimate the occurrence of combustion vibrations in combustors. Such estimating devices use present data as input variables and estimate, or calculate and provide output estimate results of, combustion vibrations that are then used to control the combustor to prevent combustion vibrations to occur. These estimating devices are capable of predicting or estimating possible combustion vibration-prone regions using a mathematical model employing plant and weather data as input variables. As explained in Applicants' specification, plant data include various data to monitor plant operating condition, such as environmental emissions of nitrogen oxides (NO_x) and carbon monoxide (CO), intake air temperature, intake air flow rate, fuel flow rate,

exhaust gas temperature, opening and closing of valves, and so on, and weather data include atmospheric temperature and pressure and moisture content.[1]

As applied to Claims 1-5, 14-18, and 27-31, Applicants respectfully submit that the invention of Kondou is completely different than Applicants' claimed inventions. Kondou objective's is clearly stated in its abstract as:

> "Pressure variation of combustion noise is detected by a microphone set in a combustion chamber, and the pressure propagation characteristic for the path from the gas flow control valve to the microphone is identified while the combustion apparatus is operating, and then an adaptive control is made using one signal detected by an microphone and the other signal produced by passing the signal of the microphone through a filter, and then a corrected anti-phase signal of a combustion noise is computed by the coefficient updating circuit, and the computed result is inputted to a gas flow control valve."[2]

It is clear to those of ordinary skill in the art that Kondou simply discloses detection of combustion-driven pressure oscillations using a microphone and, based on those measurements, the supply of anti-phase sound for the suppression of the combustion-driven pressure oscillations or combustion noise. As clearly shown in FIGS. 3 and 8 of Kondou, only one or two microphones are used to measure acoustic signal to monitor the combustion condition. Such a system and its operation as hereinabove summarized are clearly shown in FIGS. 1 and 2 of Kondou. As shown in those figures, in a casing 15, the system or invention of Kondou comprises a fan or blower 9, which is used to supply combustion air, a gas flow control valve 10, which is a fuel flow rate controller, and a main body controller 11, which is used for supplying a combustion rate control signal to the gas flow control valve 10 and the fan or blower 9. The apparatus further comprises a microphone 19, which is a pressure detector provided in the combustion chamber 14, a signal processing device 20, which is an adaptive signal processing means for computing signals substantially becoming anti-phase based on the signal detected by the microphone 19, a DC voltage controller 21 for feeding a

[1] See, for example, specification, page 57, line 20 to page 58, line 12.
[2] Kondou, abstract, emphasis added.

DC voltage to a valve controller 12, which controls the gas flow rate by driving the gas flow control valve 10, and a DC/AC mixing circuit 22 for superimposing an AC voltage on the above-mentioned DC voltage.[3] The only computation in Kondou relates to the determination of an anti-phase signal by the signal processing device 20 inputted to the DC/AC mixing circuit 22 of the valve controller 12 and outputted into the gas flow through the gas flow control valve 10, thereby causing a vibration of the spacing between the valve seat 25 and the valve body 26 to counter act, or cancel, the pressure oscillation measured by the microphone.[4] It is clear from Kondou that nothing is taught or disclosed related to estimating the possibility of combustion oscillations to occur or the existence of vibration-prone regions using a mathematical model employing plant operating data and weather data as input variables as recited in Applicants' independent claims.

As applied to Claims 6-13, 16-19, and 32-39, the above generally summarized inventions further include the ability to predict NO_x and/or CO amounts. Applicants respectfully submit that Kondou is completely silent as to such features. The only reference made to NO_x and CO in Kondou was the assumption that large production levels of nitrogen oxides and carbon monoxide are somehow related to large combustion noise,[5] thus control of combustion noise would, as a result, control NO_x and CO emissions. The present inventions predict combustion conditions which will lead to control of NO_x and CO emissions. The present inventions makes such predictions by estimating the possibility of combustion vibration to occur or the estimation of combustion vibration-prone regions by use of a mathematical model employing plant operating data and weather data as input variables as previously explained.

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[3] See, for example, Kondou, col. 6, lines 14-42.
[4] See, for example, Kondou, col. 7, lines 3-48.
[5] "Moreover, for the anomalous combustion in which a large amount of NO_x and/or CO are produced in the exhaust gas and the combustion noise is large, when the microphone 19 detects a sound pressure exceeding a predetermined threshold, it is judged that an anomalous combustion takes place, and production of NO_x and/or CO can be suppressed by controlling the gas flow." Kondou, col. 8, lines 20-27.

Based at least on the above summarized reasons, Applicants respectfully submit that Claims 1-39 are not anticipated by Kondou. This cited prior art reference does not disclose the novel and nonobvious features of the present inventions generally summarized hereinabove. Therefore, Applicants respectfully request that the anticipation of Claims 1-39 under 35 U.S.C. §102(b) be withdrawn and the claims passed to issuance.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 1-39 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicants' undersigned representatives at the below listed telephone number.

Respectfully submitted,

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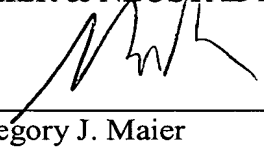

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